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P A T E N T

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re U.S. Letters Patent of:

**Grossmann**

Patent No.: **6,948,411 B2**

Issued: **September 27, 2005**

For: **MACHINE TOOL**

)  
) Application No.: **10/675,800**  
)  
) Examiner: **Willmon Fridie, Jr.**  
)  
) Art Unit: **3722**  
)  
)  
)

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450  
**ATTENTION: Certificate  
of Correction Branch**

CERTIFICATE OF MAILING

I hereby certify that this correspondence is being deposited with the United States Postal Service as First Class Mail, postage prepaid, in an envelope addressed to Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 ATTENTION: Certificate of Correction Branch on November 4, 2005.

By: Carol Prentice  
CAROL PRENTICE

REQUEST FOR CERTIFICATE OF CORRECTION  
PURSUANT TO 37 C.F.R. §1.322

**Certificate**  
**NOV 14 2005**  
**of Correction**

Dear Sir:

Transmitted herewith is a Certificate of Correction for U.S. Patent No. 6,948,411, which issued September 27, 2005. Upon reviewing the patent, the patentee noted errors made by the Patent and Trademark Office in printing the patent. Specifically, minor errors in claims 1, 18, 27, 30 and 31.

A Certificate of Correction is enclosed, and reads as follows:

- (1) Column 12, line 17: Delete "the" before "tools".
- (2) Column 12, line 18: Delete "the" before "tools".
- (3) Column 14, line 16: Change "a" to --the-- before "Z axial".
- (4) Column 14, line 44: Change "claim 12" to --claim 13--.

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- (5) Column 14, line 55: Delete "the" before "Z guides".
- (6) Column 14, line 58: Change "the" to --a-- before "Z".


A copy of the Supplemental Amendment dated March 23, 2005 is enclosed evidencing the requested corrections.

Since the errors for which a Certificate of Correction are sought were the result of Patent and Trademark Office mistakes, no fee is due (35 U.S.C. §254). The issuance of the enclosed Certificate of Correction is therefore respectfully requested.

Attached hereto, in duplicate, is Form PTO-1050, with at least one copy being suitable for printing.

Please send the Certificate to Patentee's undersigned representative.

Respectfully submitted,

  
\_\_\_\_\_  
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Attorney for Applicant(s)  
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ATTORNEY DOCKET NO.: HOE-782  
Date: November 4, 2005

NOV 17 2005



HOE-782

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: )

Walter Grossman )

Serial No.: 10/675,800 )

Filed: September 30, 2003 )

Examiner: Willmon Fridie, Jr.

Art Unit: 3722

For: MACHINE TOOL

Mail Stop Amendment  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

CERTIFICATE OF MAILING

I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as first-class mail in an envelope addressed to: Mail Stop Amendment, Commissioner for Patents, P.O. Box 1450, Alexandria, VA, 22313-1450 on: March 23, 2005.

By: Carol Prentice

Carol Prentice

SUPPLEMENTAL AMENDMENT

Dear Sir:

This Amendment is supplemental to the Amendment filed on December 27, 2004, and in accordance with the telephone interview held with the Examiner on March 21, 2005.

Please amend the above-identified U.S. patent application as follows:

Amendments to the Claims are reflected in the listing of claims, which begins on page 2 of this paper.

Remarks/Arguments begin on page 13 of this paper.

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**Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

1. (Previously Presented) Machine tool, comprising:

a machine frame;

a first spindle housing carrier and a second spindle housing carrier disposed on said machine frame in such a way that they can be moved in a Z direction in relation to each other;

a first working spindle, which receives a first workpiece and is mounted rotatably about a first spindle axis in a first spindle housing seated on the first spindle housing carrier, said first spindle housing carrier extending laterally away from said first spindle housing parallel to a first lateral direction;

a second working spindle, which is disposed coaxially with respect to the first working spindle, receives a second workpiece and is mounted rotatably about a second spindle axis in a second spindle housing seated on the second spindle housing carrier, said second spindle housing carrier extending laterally away from said second spindle housing parallel to said first lateral direction;

a first tool carrier, which is movable in an X direction and is associated with the first working spindle for the machining of the first workpiece, disposed in the first working spindle, said first tool carrier and said first spindle housing carrier being arranged on approximately opposite sides of said first spindle axis;

a second tool carrier, which is movable in an X direction and is associated with the second working spindle for the machining of the second workpiece, disposed in the second working spindle, said second tool carrier and said second spindle housing carrier being arranged on approximately opposite sides of said second spindle axis;

the first and second tool carriers being disposed on the same side of the spindle axis;

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a machine control unit for controlling the relative movements between the first workpiece and tools of the first tool carrier and the second workpiece and tools of the second tool carrier; and

a third tool carrier, movable at least in an X direction and associated with one of the working spindles, said third tool carrier being provided between the spindle housing carriers of the first and second working spindles on a side of the spindle axes which is approximately opposite from the first and second tool carriers.

2. (Currently Amended) Machine tool, comprising:

a machine frame;

a first spindle housing carrier and a second spindle housing carrier disposed on said machine frame in such a way that they can be moved in a Z direction in relation to each other;

a first working spindle, which receives a first workpiece and is mounted rotatably about a spindle axis in a first spindle housing seated on the first spindle housing carrier, said first spindle housing carrier extending laterally away from said first spindle housing parallel to a first lateral direction;

a second working spindle, which is disposed coaxially with respect to the first working spindle, receives a second workpiece and is mounted rotatably about a spindle axis in a second spindle housing seated on the second spindle housing carrier, said second spindle housing carrier extending laterally away from said second spindle housing parallel to said first lateral direction;

a first tool carrier, which is movable in an X direction and is associated with the first working spindle for the machining of the first workpiece;

a second tool carrier, which is movable in an X direction and is associated with the second working spindle for the machining of the second workpiece;

the first and second tool carriers being disposed on the same side of the spindle axis;

a machine control unit for controlling the relative movements between the first workpiece and tools of the first tool carrier and the second workpiece and tools of the second tool carrier;

and a third tool carrier, movable at least in an X direction and associated with one of the

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working spindles, said third tool carrier being provided between the spindle housing carriers of the first and second working spindles on a side of the spindle axes which is approximately opposite from the first and second tool carriers,

wherein the third tool carrier is disposed on an X slide, which is guided on an X slide base by X guides disposed in an X guiding plane perpendicular to the spindle axes.

3. (Previously Presented) Machine tool according to claim 2, wherein a fourth tool carrier is disposed between the first and second spindle housing carriers and the third tool carrier is associated with the first working spindle and the fourth tool carrier is associated with the second working spindle.

4. (Original) Machine tool according to claim 3, wherein the fourth tool carrier is disposed on an X slide which is guided on an X slide base by X guides disposed in the X guiding plane perpendicular to the spindle axes.

5. (Previously Presented) Machine tool according to claim 3, wherein the third tool carrier and the fourth tool carrier are seated on respective X slides.

6. (Original) Machine tool according to claim 5, wherein the X slide of the third tool carrier and the X slide of the fourth tool carrier are seated on a common X slide base.

7. (Previously Presented) Machine tool according to claim 5, wherein each of the X slides has a respective X slide base.

8. (Previously Presented) Machine tool according to claim 2, wherein the X guides have in the transverse direction running in the X guiding plane and transversely to the X direction a spacing from each other which corresponds at least to an effective diameter of the workpiece receptacle in the respective working spindles.

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9. (Previously Presented) Machine tool according to claim 2, wherein the X guides have in a transverse direction running in the X guiding plane and transversely to the X direction a spacing from each other which is of the order of magnitude of an extent of the respective tool carrier in the transverse direction.

10. (Previously Presented) Machine tool according to claim 2, wherein the X slide has a slide body which is guided by the X guides close to its edge sides that are spaced apart in a transverse direction.

11. (Previously Presented) Machine tool according to claim 2, wherein a slide body is guided by the X guides seated on edge surfaces running transversely to the X guiding plane.

12. (Previously Presented) Machine tool according to claim 2, wherein the X slide base is formed as a Z slide guided by Z guides.

13. (Currently Amended) Machine tool, comprising:

a machine frame;

a first spindle housing carrier and a second spindle housing carrier disposed on said machine frame in such a way that they can be moved in a Z direction in relation to each other;

a first working spindle, which receives a first workpiece and is mounted rotatably about a spindle axis in a first spindle housing seated on the first spindle housing carrier, said first spindle housing carrier extending laterally away from said first spindle housing parallel to a first lateral direction;

a second working spindle, which is disposed coaxially with respect to the first working spindle, receives a second workpiece and is mounted rotatably about a spindle axis in a second spindle housing seated on the second spindle housing carrier, said second spindle housing carrier extending laterally away from said second spindle housing parallel to said first lateral direction;

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and

a tool carrier, movable at least in an X direction and associated with one of the working spindles, said tool carrier being provided between the spindle housing carriers of the first and second working spindles on the same side of the spindle axes;

wherein the tool carrier is disposed on an X slide, which is guided on an X slide base, a Z slide carrying said X slide base and being guided on Z slides on said machine frame. said Z slide being further guided by a Z guide on the spindle housing carrier which has its working spindle associated with the tool carrier disposed on the Z slide.

14. (Currently Amended) Machine tool according to claim 13, wherein the Z guide has an arm which extends from the Z slide in the direction of at least one of the spindle housing carriers.

15. (Original) Machine tool according to claim 14, wherein the arm extends beyond the spindle housing carrier.

16. (Original) Machine tool according to claim 14, wherein the arm extends through a Z guiding receptacle for said arm which is disposed on the spindle housing carrier.

17. (Currently Amended) Machine tool according to ~~claim 13~~ claim 14, wherein a Z axial drive is provided, with which the Z slide can be moved in relation to the respective spindle housing carrier.

18. (Previously Presented) Machine tool according to claim 17, wherein the Z axial drive is effective between the arm and the spindle housing carrier.

19. (Original) Machine tool according to claim 18, wherein a drive motor for the Z axial drive is held by the arm.

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20. (Original) Machine tool according to claim 14, wherein an X axial drive motor for the X slide is disposed at an end of the arm opposite from the Z slide.
21. (Original) Machine tool according to claim 20, wherein a drive train extends along the arm between the X axial drive motor and the Z slide.
22. (Original) Machine tool according to claim 21, wherein the drive train is led through the arm.
23. (Previously Presented) Machine tool according to claim 13, wherein the Z slide is supported by at least one guiding element on the Z guide provided on the machine frame.
24. (Previously Presented) Machine tool according to claim 23, wherein the Z slide is guided by the guiding element respectively on one of two Z guides disposed on the machine frame.
25. (Original) Machine tool according to claim 23, wherein at least one of the guiding elements is guided on the corresponding Z guide with a guiding length in the Z direction which is less than a guiding length accepting tilting moments of the Z slide.
26. (Original) Machine tool according to claim 23, wherein at least one of the guiding elements is guided on the corresponding Z guide in such a way that the latter only accept forces lying in a plane running transversely to the Z direction.
27. (Previously Presented) Machine tool according to claim 13, wherein the Z guides disposed on the machine frame are also formed as Z guides of a further slide guided on the machine frame.

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28. (Currently Amended) Machine tool according to ~~claim 1~~ claim 13, wherein at least one of the spindle housing carriers forms a spindle housing carrier slide which can be made to move in the Z direction for the working spindle carried by said slide.

29. (Original) Machine tool according to claim 28, wherein both spindle housing carriers are formed as spindle housing carrier slides which can be made to move in the Z direction.

30. (Previously Presented) Machine tool according to claim 28, wherein a Z guiding plane, in which Z guides for the spindle housing carrier slide lie, runs transversely to a setting-up area of the machine frame.

31. (Previously Presented) Machine tool according to claim 28, wherein a Z slide is guided at least on one of the two spaced-apart Z guides for the respective spindle housing carrier slide.

32. (Previously Presented) Machine tool according to claim 31, wherein the Z slide is guided on both the spaced-apart Z guides for the respective spindle housing carrier slide.

33. (Previously Presented) Machine tool, comprising:

- a machine frame;

- a first spindle housing carrier and a second spindle housing carrier disposed on said machine frame in such a way that they can be moved in a Z direction in relation to each other;

- a first working spindle, which receives a first workpiece and is mounted rotatably about a spindle axis in a spindle housing seated on the first spindle housing carrier;

- a second working spindle, which is disposed coaxially with respect to the first working spindle, receives a second workpiece and is mounted rotatably about a spindle axis in a spindle housing seated on the second spindle housing carrier;

- a first tool carrier, which is movable in an X direction and is associated with the first working spindle for the machining of the first workpiece;

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a second tool carrier, which is movable in an X direction and is associated with the second working spindle for the machining of the second workpiece;

the first and second tool carriers being disposed on the same side of the spindle axis;

a third tool carrier, movable at least in an X direction and associated with the first working spindle;

a fourth tool carrier movable at least in an X direction associated with the second working spindle, said third and fourth tool carriers being provided on a side of the spindle axes which is approximately opposite from the first and second tool carriers;

a machine control unit for controlling the relative movements between the first workpiece and tools of the first tool carrier and the second workpiece and tools of the second tool carrier;

wherein with the machine control unit in a machining mode, the third tool carrier can be made to move in relation to the first working spindle and the fourth tool carrier can be made to move in relation to the second working spindle into Z positions required for the machining of the first workpiece and second workpiece, respectively.

34. (Original) Machine tool according to claim 33, wherein with the machine control unit in the machining mode, the first tool carrier and the first working spindle can be made to move in relation to each other into the Z positions required for the machining of the first workpiece.

35. (Original) Machine tool according to claim 33, wherein with the machine control unit in the machining mode, the second tool carrier and the second working spindle can be made to move in relation to each other into the Z positions required for the machining on the second workpiece.

36. (Previously Presented) Machine tool according to claim 1, wherein the third tool carrier carries tools which can be used at least on one of the workpieces, with the machine control unit in a machining mode, one of the working spindles being movable in relation to the third tool carrier in a way corresponding to Z positions required for the machining of the respective workpiece by means of the tool provided on the third tool carrier for this workpiece, and the tool

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carrier associated with this working spindle being movable in relation to this working spindle in a way corresponding to the Z positions required for the machining of this workpiece by means of the tool provided on this tool carrier, likewise associated with the working spindle.

37. (Previously Presented) Machine tool, comprising:

- a machine frame;

- a first spindle housing carrier and a second spindle housing carrier disposed on said machine frame in such a way that they can be moved in a Z direction in relation to each other;

- a first working spindle, which receives a first workpiece and is mounted rotatably about a spindle axis in a spindle housing seated on the first spindle housing carrier;

- a second working spindle, which is disposed coaxially with respect to the first working spindle, receives a second workpiece and is mounted rotatably about a spindle axis in a spindle housing seated on the second spindle housing carrier;

- a first tool carrier, which is movable in an X direction and is associated with the first working spindle for the machining of the first workpiece;

- a second tool carrier, which is movable in an X direction and is associated with the second working spindle for the machining of the second workpiece;

- the first and second tool carriers being disposed on the same side of the spindle axis;

- a third tool carrier, associated with the first working spindle;

- a fourth tool carrier associated with the second working spindle, said third and fourth tool carriers being provided on a side of the spindle axes which is approximately opposite from the first and second tool carriers; and

- a machine control unit for controlling the relative movements between the first workpiece and tools of the first tool carrier and the second workpiece and tools of the second tool carrier;

- wherein with the machine control unit in the machining mode, the first working spindle is movable in relation to the third tool carrier and the second working spindle is movable in relation to the fourth tool carrier into Z positions required for the machining of the first workpiece and second workpiece, respectively.

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38. (Previously Presented) Machine tool according to claim 37, wherein the first tool carrier is movable in relation to the first working spindle and the second tool carrier is movable in relation to the second working spindle into the Z positions required for the machining.

39. (Previously Presented) Machine tool according to claim 13, wherein said tool carrier is a third tool carrier, said machine tool further comprising:

- a first tool carrier, which is movable in an X direction and is associated with the first working spindle for the machining of the first workpiece;

- a second tool carrier, which is movable in an X direction and is associated with the second working spindle for the machining of the second workpiece;

- the first and second tool carriers being disposed on the same side of the spindle axis; and

- a machine control unit for controlling the relative movements between the first workpiece and tools of the first tool carrier and the second workpiece and tools of the second tool carrier.

40. (Currently Amended) Machine tool according to claim 13, wherein said tool carrier is associated with the first working spindle, comprising:

- ~~a machine frame;~~

- ~~a first spindle housing carrier and a second spindle housing carrier disposed on said machine frame in such a way that they can be moved in a Z direction in relation to each other;~~

- ~~a first working spindle, which receives a first workpiece and is mounted rotatably about a spindle axis in a spindle housing seated on the first spindle housing carrier;~~

- ~~a second working spindle, which is disposed coaxially with respect to the first working spindle, receives a second workpiece and is mounted rotatably about a spindle axis in a spindle housing seated on the second spindle housing carrier;~~

- ~~a tool carrier, movable at least in an X direction and associated with the first working spindle; and~~

- a further tool carrier movable at least in an X direction associated with the second

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working spindle;

said tool carriers being provided on the same side of the spindle axes;

wherein with a machine control unit in a machining mode, the tool carrier can be made to move in relation to the first working spindle and the further tool carrier can be made to move in relation to the second working spindle into Z positions required for the machining of the first workpiece and second workpiece, respectively.

41. (Cancelled)

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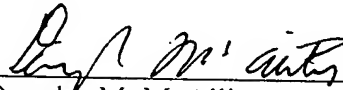
REMARKS

This Supplemental Amendment is being filed in accordance with the Examiner initiated telephone interview held on March 21, 2005 with Applicant's attorney, Barry Lipsitz. During the interview, agreement was reached that with the present amendments, all of the claims would be allowable.

Claims 1-40 are pending in this application. Claims 2, 13, 14, 17, 28 and 40 are amended herein as discussed with the Examiner. Claim 41 has been cancelled. In particular, claims 2 and 13 are amended to add additional elements per the Examiner's request. Claim 17 is amended to correct an antecedent basis problem in claims 18 and 19, which depend from claim 17. Claim 28 is amended to correct its dependency. Claim 40 is amended from an independent claim to a claim that is dependent on claim 13.

The Examiner is respectfully requested to allow each of the pending claims and to pass this application on to an early issue. If there are any remaining issues that need to be addressed in order to place this application into condition for allowance, the Examiner is requested to telephone Applicant's undersigned attorney.

Respectfully submitted,



Douglas M. McAllister  
Attorney for Applicant(s)  
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Attorney Docket No.: HOE-782  
Date: March 23, 2005

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**UNITED STATES PATENT AND TRADEMARK OFFICE  
CERTIFICATE OF CORRECTION**Page 1 of 1PATENT NO. : 6,948,411 *B2*

APPLICATION NO.: 10/675,800

ISSUE DATE : September 27, 2005

INVENTOR(S) : Grossmann

It is certified that an error appears or errors appear in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

Column 12, line 17: Delete "the" before "tools".

Column 12, line 18: Delete "the" before "tools".

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Column 14, line 55: Delete "the" before "Z guides".

Column 14, line 58: Change "the" to --a-- before "Z".

**MAILING ADDRESS OF SENDER (Please do not use customer number below):**

Lipsitz & McAllister, LLC  
755 Main Street - Building 8  
Monroe, CT 06468

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**NOV 17 2005**



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CERTIFICATE OF CORRECTION

Page 1 of 1

PATENT NO. : 6,948,411 *B2*  
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